

## **Abstract of the Disclosure**

The invention relates to methods and systems for high throughput and quantitative processing, assaying and development of microarrays of DNA, proteins and other biological and chemical reagents. An in-line processing system can be utilized based on a continuous indexing of microarray slides or substrates through a series of processes where different functions or processes are performed at different positions on a conveyor. A batch processing system can also be utilized, wherein the process steps are performed serially to an array of microarray slides or substrates mounted on a movable table or carriage. A versatile positive displacement aerosol dispensing system has the ability to aspirate fluid. A universal substrate cassette can hold a plurality of substrates or slides through a number of process steps without the need to remove the substrates or slides from the cassette.

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